

CLAIMS

What is claimed is:

1. An axle assembly comprising:
a first axle shaft defined substantially along a first axis of rotation;
a second axle shaft defined substantially along said first axis of rotation;
an electric motor defined substantially along a second axis of rotation parallel to said first axis of rotation;
a first stage gear reduction driven by said electric motor;
a second stage gear reduction driven by said first stage gear reduction; and
a third stage gear reduction driven by said second stage gear reduction, said first axle shaft and said second axle shaft driven by said third stage gear reduction.
2. The axle assembly as recited in claim 1, further comprising a second electric motor defined along a third axis of rotation parallel to said first axis of rotation.
3. The axle assembly as recited in claim 1, wherein said first stage gear reduction comprises a drive gear which drives an idler gear which drives a driven gear, said driven gear drives said second stage gear reduction.
4. The axle assembly as recited in claim 3, wherein said driven gear is a sun gear within said second stage gear reduction.
5. The axle assembly as recited in claim 1, wherein said second stage gear reduction comprises a planetary gear set.
6. The axle assembly as recited in claim 5, wherein said planetary gear set comprises a carrier which drives said third stage gear reduction.

7. The axle assembly as recited in claim 1, wherein said third stage gear reduction comprises a single speed electric carrier.

8. The axle assembly as recited in claim 1, wherein said third stage gear reduction comprises a two-speed electric carrier.

9. The axle assembly as recited in claim 1, wherein said third stage gear reduction comprises a includes a differential gear set substantially contained within the two-speed reduction gear set.

10. An axle assembly comprising:
a first axle shaft defined substantially along a first axis of rotation;
a second axle shaft defined substantially along said first axis of rotation;
a first electric motor defined substantially along a second axis of rotation parallel to said first axis of rotation;
a second electric motor defined substantially along a third axis of rotation parallel to said first axis of rotation;
a first stage gear reduction driven by said first and second electric motor;
a second stage gear reduction driven by said first stage gear reduction; and
a third stage gear reduction driven by said second stage gear reduction, said first axle shaft and said second axle shaft driven by said third stage gear reduction.
11. The axle assembly as recited in claim 10, wherein said first stage gear reduction comprises a drive gear which drives an idler gear which drives a driven gear, said driven gear drives said second stage gear reduction.
12. The axle assembly as recited in claim 11, wherein said driven gear is coaxial with said first axle shaft.
13. The axle assembly as recited in claim 10, wherein said second stage gear reduction comprises a planetary gear set.
14. The axle assembly as recited in claim 13, wherein said planetary gear set comprises a carrier which drives said third stage gear reduction, said carrier coaxial with said first axis.
15. The axle assembly as recited in claim 10, wherein said third stage gear reduction comprises an input side gear coaxial with said first axis, said input side gear driven by said second stage gear reduction.

16. The axle assembly as recited in claim 10, wherein said third stage gear reduction comprises a single speed electric carrier coaxial with said first axis, said a single speed electric carrier driven by said second stage gear reduction.

17. An axle assembly comprising:
a first axle shaft defined substantially along a first axis of rotation;
a second axle shaft defined substantially along said first axis of rotation;
a first electric motor defined substantially along a second axis of rotation parallel to said first axis of rotation;
a second electric motor defined substantially along a third axis of rotation parallel to said first axis of rotation;
a gearbox assembly comprising a first stage gear reduction, a second stage gear reduction, and a third stage gear reduction, said gearbox assembly located substantially between said first and second electric motors to drive said first and second axle shaft.
18. The axle assembly as recited in claim 17, wherein said second stage gear reduction comprises a planetary gear set comprising a ring gear rotationally fixed to a housing of said gearbox assembly.
19. The axle assembly as recited in claim 18, wherein said planetary gear set comprises a carrier coaxial with said first axis to drive said third stage gear reduction.